

Inter-organizational Resource Coordination between NGOs in emergency responses

First author: Muriel Dufour

Affiliation: University of Quebec in Outaouais
e-mail address: Muriel.Dufour@uqo.ca

ABSTRACT:

Resource coordination between NGOs is crucial to have efficient emergency responses. Information Systems (IS) are a tool facilitating resource transfers, information exchanges, and resource coordination between organizations. They cannot be efficient if they are not adapted to fundamental problems of crisis management and specifically to resource coordination processes. This paper explores the operational aspect of resource transfer processes, the intensity of resource coordination between NGOs, and the characteristics an IS, as a support to those processes, must have to improve the resource coordination. Sixty-five in-depth interviews, documentation, and on-site observations in Chile with 13 NGOs chosen for their diversity allowed identifying different categories of processes. A mixed-transformative approach being used, intensity scores were assigned to processes and global scores were calculated for NGOs, based on their processes. A brief discussion follows on how information systems should be adapted to help these processes to increase coordination intensity.

Keywords

Coordination, IT, NGO, Processes, Resources

INTRODUCTION AND RESEARCH OBJECTIVES

The huge impact of natural disasters shows that efficient responses are needed in order to alleviate the suffering of victims and economic consequences. This efficiency is closely linked to an adequate coordination between actors participating in emergency responses (Bui *et al.*, 2000; Moore *et al.*, 2003), in particular in terms of resources (Haimes *et al.*, 2008). However, the lack of resource transfer optimization often appeared to be problematic (Haimes *et al.*, 2008; Jahre and Jensen, 2010). “[...] the lack of, or sub-optimal coordination wastes resources and/or valuable response time” (Schultz and Blecken, 2010). This leads to a general decrease of efficiency in the emergency response system (Beamon and Kotleba, 2006, Moore *et al.*, 2003). Given their preponderant role, Non-Governmental Organizations – NGOs – which actively participate in emergency responses are the central focus of this paper. Very little research has been made about the operational aspect of NGOs’ resource coordination processes. Furthermore, no research has evaluated the intensity of resource coordination between NGOs and the link between resource coordination and IS as a support to resource-oriented processes. This paper addresses those lacks in previous researches.

THEORETICAL AND CONCEPTUAL FRAMEWORK

The concept of process is defined as “a series of actions or steps taken in order to achieve a particular end” (Oxford Dictionaries, 2014). In emergency responses, resource-oriented processes include all the resource transfers from

donation to delivery to victims or use in the field, resources ranging from equipment, goods, money (Moore *et al.*, 2003) to human resources (Siegel, 1985) and information (Therrien, 2010). Inter-organizational processes encompass Logistics and Supply Chain Management, i.e. procurement, donations management, storage, transportation and delivery (Maon *et al.*, 2009; Romano, 2003), and the relationship of the NGO with donors, providers and other organizations. This research refers to inter-organizational processes as processes occurring between non-affiliate NGOs, i.e. NGOs from different families under different banners.

The coordination has been defined as “aligning one’s actions with those of other relevant actors and organizations to achieve a shared goal.” (Comfort, 2007). Coordination is insured by adopting specific procedures (Simon, 1983). Therefore, processes are coordination and studying them allow us to get a better understanding of coordination.

The fact that coordination is often qualified as good or weak is linked to the concept of intensity, i.e. “the strength, power, force, concentration of something” (Microsoft Encarta Dictionary, 2001). We define the concept of coordination intensity as: the strength of the link between two NGOs in terms of inter-organizational processes.

Different coordination models are proposed in the literature. Galbraith’s model (1977) has been widely used and allows making a link between different forms of inter-organizational relations, organizational levels and coordination intensity. For Galbraith, the first level is “elementary coordination” and in humanitarian context, corresponds to the NGOs developing missions and marketing strategies to get funding. The second level is “implicit cooperation” between NGOs with no formal relations, on an *ad hoc* basis. In humanitarian context, it corresponds to the adjustment of an NGO to its environment which has the resources it needs (Cook, 1977; Pfeffer and Salancik, 1978 [2003]). The third level is an “explicit cooperation”, based on formal engagements between organizations. In the humanitarian field, NGOs make contractual agreements in order to get the resources needed. It is usually a task fulfilled by the NGO’s procurement department, at an intermediary – tactic – level of the organization. The fourth level - called “cooptation” – consists of formulation of exchange procedures and policies. This level of coordination comes out usually at the strategic level of the organization, thus a much higher level than the third one. The last level is “coalition” and covers all kinds of strategic

alliances that NGOs establish. Such coalitions involve the highest organizational level.

This model was validated with further empirical researches showing that resources coordination and exchanges are different when they involve different organizational levels – operational, tactic and strategic – (Byman, 2001; Jahre and Jensen, 2010). Strategic level being defined as the level making “long-term,” decisions; the tactic level as making mid-term decisions; and the operational level as making “day-to-day” decisions (Balcik *et al.*, 2010). In this research, we kept those three levels, namely strategic, tactic and operational.

Therefore, there is a close relationship between the organizational level controlling the process, the formalization of the process, and the intensity of the coordination. The higher the organizational level is, the more intense the coordination will be. Similarly, the higher the degree of formalization is, the more intense the coordination will be. And more generally according to Galbraith (1977), the higher the organizational level involved is, the higher the formalization of the process at stake will be.

The last concept useful for this paper comes from the organizational exchange theory (Benson, 1975; Cook, 1977). Two organizations exchanging resources will eventually end up in a relationship in which one dominates the other and imposes some standards on the processes engaging it to the dominated NGO. Such imposition will tend to harmonize processes and to increase the coordination intensity.

Driven by Galbraith’s model and exchange theory, we developed a tool measuring coordination intensity based on 1) the organizational level or *Level Indicator*: the higher the organizational level is, the more intense the coordination will be; 2) the degree of formalization or *Formalization Indicator*: the higher the degree of formalization is, the more intense the coordination will be; 3) the imposition of standards of a dominant NGO to another or *Standards Indicator*: the presence of standards imposed on the process shows a high coordination intensity.

METHODOLOGY

A mixed-transformative approach has been used (Creswell, 2009), allowing us at once to explore in-depth resource transfer processes in their operational aspects with qualitative data and to analyze them in terms of trends and

intensity measure with quantitative data. Furthermore, qualitative data allowed us to enrich qualitative data with in-depth analysis explaining trends and measures obtained. The first objective being exploratory – identifying resource-oriented inter-organizational processes and their operational characteristics – qualitative data was collected through 65 in-depth interviews, internal and public documentation, and on-site observations during a 2-month field to Chile following the mega-disaster that hit the country on 2010. Data was coded with NVivo, a software designed for qualitative and mixed methods researches. The second objective - evaluating the intensity of the coordination that characterizes the inter-organizational processes analyzed in the first step – qualitative data was transformed in quantitative data. This transformation was done using a tool developed with our theoretical framework, attributing scores based on the indicators of intensity described in previous section. Scores were calculated for each process and then a global coordination intensity score was calculated for every NGO based on the addition of scores of all processes it uses.

The NGOs sampling strategy relies on a diversification principle, based on the hypothesis that different NGOs would have different processes pertaining to their resources. The sample is composed of 13 NGOs with different characteristics in terms of size, origin, annual budget, age and strategic orientation – emergency only or emergency and long-term projects.

RESULTS

Research objective 1: Identifying the inter-organizational resource-oriented processes used by Emergency NGOs

Three categories of inter-organizational resource-oriented processes, with a total of ten types of inter-organizational processes, were identified and can be described as followed:

Category 1: Processes made in common by several NGOs or outsourced from other non-affiliate NGOs

This category groups together five types of processes: a) procurement; b) storage and transportation; c) delivery; and d) needs assessments. The first three are Logistics processes. The fourth is more easily characterized as a

planning process but it appears to be a critical inter-organizational mechanism to coordinating resources and activities between NGOs during emergency responses.

Category 2: Processes implying a resource transfer to another non-affiliate NGO

This category involves: 1) lending and exchanging resources; and 2) donating resources.

Category 3: Processes resulting from coordination between non-affiliate NGOs for resource allocation or usage

Four main types of processes were identified in this category: a) sectorial or geographical breakdown which consists of dividing the response between NGOs by types of activities or geographical zones; b) the use of common tools and standards developed internationally or by a group of NGOs, such as the SPHERE Project – a subset of those standards being specific to resources - or the EDAN tool (Evaluation of Damage and Assessment Needs); c) information sharing which is a mechanism giving a general basis for enabling any coordination between NGOs, particularly for resources usage and activities performed; d) partnerships which encompasses a great variety of collaborations between NGOs, ranging from a simple and limited task made in common, to a full strategic alliance between two or more NGOs. For the purpose of this research, partnerships will cover any form of association between NGOs that are not part of the categories mentioned above in this section.

Research objective 2: Measuring the Coordination Intensity Level of inter-organizational resource-oriented processes

Scores weighting

Scores are given in relation to the coordination intensity level. For the *Level-Indicator*, a score of 2 is given when an inter-organizational process is made at an operational level (day-to-day operations) because of its low intensity, while a process made at tactical level (mid-term decisions) has a score of

4 representing an average intensity. A process made at a strategic level (long-term decisions) has a score of 8 for its higher level of coordination intensity. When several organizational levels are involved for one type process, scores for each level will be added. Following the same approach for the *Formalization-Indicator*, a score of 2 is given when the process is done on an *ad hoc* basis (lower intensity), a score of 4 when done on a contractual basis (medium intensity), and a score of 8 when done on a coalition basis (higher intensity). When an NGO uses a combination of different basis for one type of process, scores will be added. As for the *Standards-Indicator*, a score of 2 is given when a process is not linked to any standards imposed by another NGO (low intensity), and a score of 8 is given when standards are actually imposed by a NGO to another, representing the high intensity of their coordination. In all cases, a score of 0 is given when there is no inter-organizational resource-oriented process of a given type.

Measurement of inter-organizational coordination intensity in regard to the three indicators

Scores obtained for the ten types of processes in regard to the three indicators have been calculated then added. They are summarized in table 1. The NGOs' ranking is showing a decreasing intensity in inter-organizational coordination. For anonymity purposes, NGOs have been assigned a numeric identification number (OX).

The intensity scores of table 1 vary extensively, from 282, the highest score, to 84, the lowest one. It is worth noticing that the scores are not correlated to the NGO's size: the 1st, 4th and 5th scores belong to large NGOs, while the 2nd belongs to a small one and the 3rd a medium one. Results show that all NGO coordinate their resource-oriented process with non-affiliate NGOs, but at various degree, O5 being at the minimum level with 84 and O2 being at the maximum level at 282. The average score for the group is 178. Six ONG are over the average and 7 are below. This implies that more than half of the NGOs are either not willing to coordinate with others or are not able to do so, given the processes they have chosen and put in place regarding how they deal with resources. These discrepancies between NGOs are even more obvious when considering that the NGO with the highest score has intensity 335% greater than the NGO with the lowest score.

INDICATORS	GLOBAL SCORE FOR INTER-ORGANIZATIONAL COORDINATION INTENSITY PER NGO FOR ALL INTER-ORGANIZATIONAL RESOURCE TRANSFER PROCESSES													MEAN	
	NGO IDENTIF. AND SIZE	O2 S*	O7 S	O10 L	O12 L	O4 L	O3 M	O11 L	O13 L	O1 L	O8 S	O9 L	O6 L		O5 L
LEVEL		102	90	92	68	82	86	74	56	50	60	48	48	34	68
STANDARDS		68	74	60	68	52	60	32	46	54	48	34	24	28	50
FORMALIZATION		112	88	80	92	76	62	56	52	50	36	26	20	22	59
TOTAL SCORE PER NGO		282	252	232	228	210	208	162	154	154	144	108	92	84	178

Size: *S for Small NGO: budget <10 M\$; M for Medium NGO: Annual budget between 10 and 50 M\$; L for large NGOs: Annual budget > 50M\$

Table 1. Global scores of the NGO's inter-organizational coordination intensity

In summary, non-affiliate NGOs have very different scores in terms of coordination intensity, which reflect different choices in regard to resource-oriented processes. They have different ways of "doing things". In the meantime, resource transfer processes rely on information systems, IS being a support to the processes. Therefore, NGOs must implement IS keeping in mind

that, as part of the processes, the same characteristics as the resources-oriented processes IS support will lead to the same coordination intensity. Therefore, in order to reach high coordination intensity level in terms of resources, resource information systems: 1) must integrate all exchanges at all organizational levels – strategic, tactic and operational, within and between NGOs working together; 2) should allow harmonized information on resources between non-affiliate NGOs. This could be done through standards – such as SPHERE – which would be developed between NGOs. This would avoid system inoperability problems such as those seen during the hurricane Katrina (Dufour, 2008); 3) should include procedures automatically formalizing resource transfer processes between non-affiliate NGOs. This could be done through on-line forms for every NGO for example. However, all those procedures must be designed to be easy to access and to use because they must not put an extra burden on emergency managers.

CONCLUSION

The huge impact of natural disasters shows that efficient emergency responses are needed. Efficiency is closely linked to resource coordination between NGOs. Addressing a lack in previous research, this paper aims getting a better understanding of resource coordination processes between non-affiliate NGOs, key players of emergency responses, evaluates the intensity of resource coordination between those NGOs with a tool developed for that purpose and proposes some characteristics that an IS should have in order to improve inter-organizational resource coordination. Qualitative empirical data was collected through 65 in-depth interviews in 13 NGOs – very different in terms of size, origin, annual budget, age and strategic orientation, internal and public documentation and on-site observations during a 2-month field trip to Chile. Ten resource-oriented inter-organizational processes grouped in three categories were identified and their operational characteristics were analyzed. Based on Galbraith's coordination model (1977) and the inter-organizational relations theory of Benson (1975) and Cook (1977), a tool has been developed to measure the intensity of resource coordination between NGOs, based on three indicators: 1) the organizational level involved in the process – the higher level, the higher intensity score; 2) the formalization of the process – the higher formalization, the higher intensity score; and 3) the imposition of

standards on one of the NGOs part of the process – high score when standards are imposed. According to the theoretical framework, score have been assigned to every inter-organizational process for all three factors, leading to calculate scores for every process and every NGO for the set of processes it uses.

Results show that NGOs have very different overall scores in terms of inter-organizational coordination intensity, which reflects different choices in ways of managing processes. However, more interesting, the link made between processes – and their operational characteristics – and the intensity of inter-organizational resource coordination allows NGOs and researchers to understand how the choice of process operational characteristics can influence their resource coordination with other NGOs. This research allows also comparing resource-oriented processes one to the other, between NGOs or for different responses. Resource coordination being essential to the efficiency of responses, it is important to identify which ones allow the best coordination and therefore which ones are the most efficient for the overall response in terms of resource coordination.

Finally, in order to improve efficiency of disaster responses, IS have to be implemented in such a way they help improving coordination. Based on the fact that they are part of the processes they help to manage, they will enable the same coordination intensity if they have the same characteristics as the resource-oriented processes they support. Therefore, IS should 1) allow integrating information on all resource exchanges at all organizational levels within and between non-affiliate NGOs; 2) allow harmonizing information on resources between non-affiliate NGOs; and 3) facilitate formalization of resource-oriented processes in order to encourage formalization instead of relying on personal relations between emergency managers.

ACKNOWLEDGMENTS

We thank CGA-Canada and the National School of Public Administration for the scholarship that made this research possible. Thanks also to the Research Group of University of Quebec in Outaouais, and especially to Martin Lacasse who generously funded this group.

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